

CLAIMS

1. An autofocus-control device including a focus lens and an image-pickup sensor, the autofocus-control device comprising:

image-pickup means which picks up an image of a subject in a cycle that is $(1/\text{integer } N)$ times a cycle of an image-vertical-synchronization signal in synchronization with the cycle of the image-vertical-synchronization signal,

calculation means which calculates a focus-evaluation value for performing an autofocus on the basis of a signal of the image picked up by the image-pickup means, and

change means which changes a distance between the focus lens and the image-pickup sensor on the basis of a plurality of the focus-evaluation values calculated by the calculation means,

wherein the change means changes the distance so that integer-A times of the cycle of the image-vertical-synchronization signal and integer-B times of a wobbling cycle are synchronized with each other when integer A and integer B satisfy $2 \times B > A$.

2. An autofocus-control device according to Claim 1, wherein the calculation means calculates the focus-evaluation value on the basis of a high-frequency component of a brightness signal of the image-pickup signal.

3. An autofocus-control device according to Claim 1,

further comprising merge means which merges a plurality of the signals of a plurality of the images picked up by the image-pickup means.

4. An autofocus-control device according to Claim 1, further comprising selection means which selects any one of a plurality of the signals of a plurality of the images picked up by the image-pickup means.

5. An autofocus-control method used for an autofocus-control device including a focus lens and an image-pickup sensor, the autofocus-control method comprising:

an image-pickup step of picking up an image of a subject in a cycle that is $(1/\text{integer } N)$ times a cycle of an image-vertical-synchronization signal in synchronization with the cycle of the image-vertical-synchronization signal,

a calculation step of calculating a focus-evaluation value for performing an autofocus on the basis of a signal of the image picked up through processing performed at the image-pickup step, and

a change step of changing a distance between the focus lens and the image-pickup sensor on the basis of a plurality of the focus-evaluation values calculated through processing performed at the calculation step,

wherein the distance is changed, at the change step, so that integer-A times of the cycle of the image-vertical-synchronization signal and integer-B times of a wobbling

cycle are synchronized with each other when integer A and integer B satisfy $2 \times B > A$.

6. A recording medium storing a computer-readable program used by an autofocus-control device including a focus lens and an image-pickup sensor, so as to perform autofocus-control processing, the program comprising:

an image-pickup step of picking up an image of a subject in a cycle that is $(1/\text{integer } N)$ times a cycle of an image-vertical-synchronization signal in synchronization with the cycle of the image-vertical-synchronization signal,

a calculation step of calculating a focus-evaluation value for performing an autofocus on the basis of a signal of the image picked up through processing performed at the image-pickup step, and

a change step of changing a distance between the focus lens and the image-pickup sensor on the basis of a plurality of the focus-evaluation values calculated through processing performed at the calculation step,

wherein the distance is changed, at the change step, so that integer-A times of the cycle of the image-vertical-synchronization signal and integer-B times of a wobbling cycle are synchronized with each other when integer A and integer B satisfy $2 \times B > A$.

7. A program which makes a computer perform autofocus-control processing of an autofocus-control device including

a focus lens and an image-pickup sensor, the program comprising:

an image-pickup step of picking up an image of a subject in a cycle that is $(1/\text{interger } N)$ times a cycle of an image-vertical-synchronization signal in synchronization with the cycle of the image-vertical-synchronization signal,

a calculation step of calculating a focus-evaluation value for performing an autofocus on the basis of a signal of the image picked up through processing performed at the image-pickup step, and

a change step of changing a distance between the focus lens and the image-pickup sensor on the basis of a plurality of the focus-evaluation values calculated through processing performed at the calculation step,

wherein the distance is changed, at the change step, so that integer-A times of the cycle of the image-vertical-synchronization signal and integer-B times of a wobbling cycle are synchronized with each other when integer A and integer B satisfy $2 \times B > A$.